

Far Detector Installation Planning Review #2

Sept. 21, 2000

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Status of Installation documents

- **Hiring Document 1.9** **Bill**
 - Last updated in July, needs minor updating to correspond with effort profile 9
- **Materials Handling Document 1.4** **Bill**
 - Needs major re-write
 - Scintillator module handling (Leon, Doug and Bill)
 - Load timing information (hauling underground)
 - New Materials Handling Cage specs and drawings
 - Shipping schedules (everyone who is shipping something)
- **Installation Summary Document 1.4** **Bill**
 - Still shows baseline installation plan, some parts need to be re-done.

Status of Installation documents

- **Detector Commissioning Document 1.3** **Dave**
 - Has not been updated since April review. Needs a lot of work. Testing of completed planes and electronics needs help from Bob Webb and Jonathan Thron.
- **Physicists Tasks List** **Dave**
 - I believe it is mostly up to date
- **Training Documents** **Bill, Jerry, ?**
 - List if safety training needs to be completed, Jerry has started on this project. Database needs to be started to keep track of who has had training etc. Schedules for training on site would be useful.
 - Task specific training that needs to be done by specialists needs to be more clearly defined.

Surface Building Update

- Beneficial occupancy is scheduled for Nov. 15.
 - We can take shipments after this date, BUT we have a month of outfitting work to complete before it will be totally ready.
- As we plan no major steel deliveries until a month before MINOS Cavern BO we should have plenty of space to store scintillator shipping boxes and other deliveries
- Access to the shaft to haul underground will be very limited but not impossible until Feb or Mar

Surface Building Update



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Bill Miller, WBS 2.4 co-Manager

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Outfitting Over Sight

- CNA will only be supplying about 1 shift/week of over-site (mainly weekly meeting)
- Majority of inspections will be by U of M code officials. It is up to the contractor to arrange these special inspections
- CNA will inspect rock bolting & structural steel
- Minecrew will be writing construction logs and keeping CNA informed of schedule issues
- Minecrew will insure communication link
- Minecrew will be underground at all times if contractor is working in Lab. If they are only working in the shaft DNR will be working with them.

Outfitting Over Sight

- Until the structural steel is completed there is not a lot we need to watch. Once the electrical work starts we must watch closely to insure what we told them is what we want and get!!!
- Minecrew (Bill, Brian and Bruce) and physicists (Bob, Louie and Dave) must have a detailed knowledge of not only all the drawings but the entire installation task. This work won't be starting till March.

Soudan Mezzanine

- Current schedule has access to the Soudan lab mid-late Feb.
 - We can't start setup of the module-mapper until this point. I do not know how long this task is?
 - We can only haul limited number of scintillator shipping boxes underground unless we store some on mezzanine (currently not the plan)
 - Storage system plans in progress, details have to be worked out on final design of box
 - Still unclear if scintillator module plane boxes will be made by minecrew or local shops

Control Room and Computer Room

- Current contract asks for this area to be available for construction 1 month before BO in case the minecrew does the work.
- Plans are being worked on by CNA and EEA. A Change Request will be given to Lakehead for a quote.
 - Change request will include all electrical and ventilation. No additional minecrew outfitting will be required.
- Access to these rooms will likely not be before beneficial occupancy.

Sign Off on equipment and procedures

- **Equipment is easy!**
 - All materials handling equipment must be tested to 125% maximum load by contractor & verified by CNA
 - Contractor must supply training for running all equipment
 - Contractor must supply complete set of manuals
 - All lifting fixtures supplied by Fermilab have been load tested and documented
 - Complete re-test of strongback will be done with Jim Kilmer present when completed.
 - Some minecrew personal already have 10+ years experience with materials handling in the shaft.

Signoff on equipment and procedures

- **Signoff on procedures not completed yet!**
 - Safety training for most items are already supplied for minecrew like forklift , overhead crane, etc. Members of the minecrew and DNR have received OSHA approved training to be trainers. Only certified people can run any equipment or power tools.
 - All installation procedures have already been through Fermilab safety approval
 - We are in the process of working out an official signoff procedure with the U of M safety personnel (Mike Austin). Hope to have this in place in the next few months. Mike has been receiving all safety and installation documents since day 1 of this project.

Safety Training

- A new Soudan/MINOS Safety Handbook has been written. All personnel working at Soudan for more than 1 day must go through a site safety orientation
- A detailed list of other safety training available at the mine is in our Safety Manual. Most training is now done on-site as we have spent the last few years getting minecrew members certified as trainers. List includes first aid, CRP, defibrillators, high flow oxygen, fork lift, crane operation and high level rescue. Many members are part of the mine rescue team for use of SCBA's

Scintillator Module Handling

- Scintillator shipping boxes are mainly stored in surface building. Only room for 3-4 boxes underground
- Scintillator modules are picked out of the shipping boxes via overhead crane and lifting fixture onto mapping table located under lifting bay.
- Good modules are sorted and stored into scintillator plane boxes. Minecrew will try to redesign box so one long side is open. CNA or Fermilab will check design. The 3 storage spots closest to the lifting bay will be used for sorting. Once a box is full it will be stored in one of the 6 other slots available.
- The first 50-60 planes of modules will be completely tested; this is also about the number of modules that will be stored underground by the time installation begins.

Scintillator Module Handling

- Once a plane box is needed it will be lowered only a simple rolling cart and moved into the MINOS hall.
- The modules can be either slipped out of the box onto the plane using rollers, lifted by vacuum fixture or some combination of both. The best method will work out with practice.
- Bottom line is the fastest most efficient method of moving modules will be worked out as we gain experience. Our biggest problem is our space constraints. We really have no room for sorting on the main floor of Soudan.

Electronics/DAQ Startup

- The Electronics Work Area in the Soudan Hall should be ready for use by mid-late Dec. The following work needs to be done:
 - New electrical service added (current panel is full and not enough power is available)
 - Complete moving of Soudan module rebuilding tools and equipment out of cleanroom
 - Build or find in surplus at Fermilab several work benches and tables
 - Move Sola power supply
- Key will still be hoist access, very limited until after beneficial occupancy, must work with contractor

Minecrew Ramp-up

- Current WBS effort plan 9 has us hiring an administrative assistant in Jan. To help set up all the paper work and interviews. I currently have over 50 active resumes.
- Feb/Mar we hire 5 people to help start hauling materials underground when the cage is available. A welder is one of these people to help build scintillator plane storage boxes.
- Major ramp-up is May-7, June-7, July-5, Aug-5
- Adjustments will be made with final numbers of minecrew during Aug and Sept as installation tasks become routine

Start of plane construction

- Plane construction can't start until the first strongback is completed, but:
 - Steel plates and final tests of materials handling equipment can begin right away
 - Scintillator modules will have been being tested for 2-3 months, large supply ready
 - All test equipment should be underground and functional
 - All materials (cables, etc.) needed for the first plane should on hand before BO
- During 30 days of setup time the first planes will be constructed at the rate about 1/week
- Half rate construction is slated for mid-June
- Full rate construction will start Mid-Sept.